

The Digitech Impulse Driving Globotics

Mike Duke was in denial about the explosive pace of digitech, but no longer. “I wish we had moved faster,” said the former CEO of Walmart. “We’ve proven ourselves to be successful in many areas, and I simply wonder why we didn’t move more quickly.” Mickey Drexler, CEO of clothing retailer J.Crew, expressed a similar sentiment a month before “former” was added to his title: “I’ve never seen the speed of change as it is today. If I could go back 10 years, I might have done some things earlier.”¹

The speed of change is clearly hard to comprehend. Many people are either unaware of how fast the changes are coming or are living in denial. The US Secretary of the Treasury, Steve Mnuchin, is in the unaware camp.

Asked in March 2017 whether AI would replace workers, Mnuchin responded: “I think that is so far in the future. In terms of artificial intelligence taking over American jobs, I think we’re like so far away from that, that uh [it’s] not even on my radar screen. Far enough that it’s 50 or 100 more years.” This quote is illuminating since Mnuchin is not some hapless soul who watches too many segments about World War II on the

1. Khadeeja Safdar, “J.Crew’s Mickey Drexler Confesses: I Underestimated How Tech Would Upend Retail,” *Wall Street Journal*, May 24, 2017.

History Channel. His ability to see the future has paid off handsomely in the past.

In 2009, in the depth of the global crisis, Mnuchin bought a failed mortgage lender and pocketed a billion dollars in profit when he resold it in 2015. This guy is so rich that in the financial disclosures he had to fill out to become treasury secretary, he left off over a hundred million dollars in wealth by accident. When pressed at his congressional hearing, he explained: “I think as you all can appreciate, filling out these government forms is quite complicated.”²

There are good, deep-seated reasons why people as sophisticated as Duke, Drexler, and Mnuchin have trouble understanding the inhuman pace of digitech. Explosive growth is something our walking-distance brains have trouble comprehending. Think of it as the unintended consequence of an evolutionary hangover.

BRAIN BUG VERSUS EXPONENTIAL GROWTH

Our brains are the key bit of equipment when it comes to thinking about the future of digital technology, but our brains evolved to do something quite different. All animal brains, including ours, evolved to track motion. Things that move have brainpower; things that don’t, don’t. There is even an animal — the sea squirt — that has a brain when it is in its mobile life phase, but loses it once it is permanently attached to something.

This matters since the evolution took place in a very different world — a walking-distance world. We thus have a strong tendency to assume that things that changed between yesterday and today will change between today and tomorrow at more or less the same pace. We are primed by evolution to make straight-line extrapolations when thinking about the future.

2. Alan Rappeport, “Issues of Riches Trip Up Steven Mnuchin and Other Nominees,” January 19, 2017, *New York Times*. For his quote on AI, see Shannon vavra, “Mnuchin: Losing Human Jobs to AI ‘Not Even on Our Radar Screen,’” *www.axios.com*, March 24, 2017.

Many of us think of ourselves as thoroughly modern, but in reality, it wasn't that long ago that bows and arrows were hi-tech weapons. People started living in cities only about six millennia ago. Six thousand years sounds like a long time in a world where watching the first five seconds of an ad on YouTube seems like an unreasonable imposition. But it is actually not that long — not on the evolutionary timescale. Think of it this way.

Imagine you could gather your ancestors for a reunion — your mother, your grandmother, your grandmother's mother, and so on, back to the days when the first humans lived in cities. How much wine would you have to order for this grand reunion? The answer is surprisingly little. You could fit the whole party into a big movie theater with room to spare. There would only be three hundred of you. If they were all polite drinkers, which means a quarter bottle each, you'd have to lay in only a dozen crates, seventy-five bottles in all. The point is plain.

In evolutionary terms, three hundred generations is not much more than the five-second ads on YouTube. This is why our brain is not really fit to deal with the globotics upheaval. Our brains evolved to understand straight-line growth in a world where really fast meant a spear in flight. But digital technology doesn't fly that way.

How Digitech Ambushes Our Walking-Distance Minds

Digital technology advanced by small increments at first since it started from zero. For years, the progress was almost imperceptible, but then the increments got immense — a pattern we can illustrate with an example from banking.

If a bank account paid the extremely high interest rate of 58 percent per year, your money would double every 18 months and that means a penny deposited today would be worth a dollar in ten years. That's a hundredfold increase, but a dollar from a penny is hardly earth-shaking. That's growth in the "imperceptible progress" phase.

Things would be more exciting in the second and third decades, but the fourth decade is when the increments would start to impress; you would see 10 thousand dollars turn into a million dollars in the fifth decade. After that, the increments get implausibly immense. Your million becomes 100 million in the sixth decade, and 10 billion in the seventh. That's the "explosive progress" phase.

That sort of growth seems strange: a penny into ten billion dollars with the progress being way below the radar screen for thirty years. That just doesn't seem normal, and it's not if you are straight-lining the future. But it is exactly how exponential growth works. It is exactly how digitech is advancing. And it is this imperceptible-for-decades-then-explosive feature that makes it so hard to think intuitively about digitech's exponential growth.

Take computer processing speeds, for example: they are doubling every 18 months or so. The iPhone 6s, which came out in 2015, processes information about 120 million times faster than the mainframe computer that guided Apollo 11 to the moon in 1969. That is amazing. But it gets more amazing. The iPhone X, which came out in 2017, is about three times faster than the iPhone 6s. That means the increment in processing speed between 2015 and 2017 was 240 million times the speed of the Apollo 11 computer.

Think about that. The increment in power in the two years after 2015 was twice as large as all the progress between 1969 and 2015. Twice as much progress in two years as there was in the 46 previous years. That just does not seem normal to our walking-distance brains. This imperceptible-for-decades-then-explosive feature is why many are either unaware of how fast the changes are coming or living in denial.

We can draw a picture of this mismatch between our natural tendency to straight-line the future and the actual shape of the exponential growth. I call it the "holy cow" diagram.³

3. I was inspired in drawing this by a blog post by Ro Gupta, "Why We Overestimate the Short Term and Underestimate the Long Term in One Graph", www.rocrastination.com.

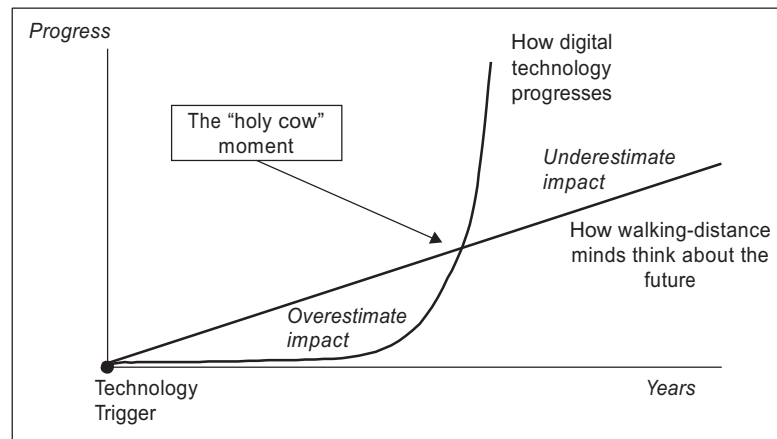


Figure 4.1 The Holy-Cow Diagram.
source: Author's drawing.

The “Holy Cow” Diagram

Our intrinsic tendency to straight-line the future is illustrated with the straight line that rises steadily from left to right (Figure 4.1). The actual way that digital technology progresses is shown as the hockey-stick-shaped curve. During the imperceptible-progress phase, it is bumping along the bottom. When it hits the explosive-progress phase, it rockets upward as shown.

When the explosive growth of digital progress crosses the human projection of progress, we get what I think of as the “holy cow” moment. This is when digitech is “disruptive”. People knew it was coming—they just didn’t expect it to come so fast. They just can’t comprehend why things are changing so fast now when they weren’t changing that fast in the past.

The progress during the explosive growth phase just doesn’t seem feasible or reasonable given past experience. And in a walking-distance world, it isn’t reasonable. In an exponential growth world, by contrast, it is inevitable—as the ex-CEOs Duke and Drexler found out the hard way.